AMENDMENTS TO THE SPECIFICATION:

Please amend paragraphs [013], [024], and [030] as follows:

[013] In accordance with the invention, there is provided a signal processing method that includes receiving a first signal for wireless communication, obtaining an approximate function of pulse shaping in the first signal, separating, that is, extracting, the approximate function of pulse shaping from the first signal to obtain a second signal, and processing the second signal to obtain a user signal.

[024] This invention provides perturbation and equalization methods for multi-user detection in wireless communication systems. In one embodiment, the invention uses an equalization technique to separate, that is, to extract, the approximately known artificial distortion, non-channel function, or, in particular, pulse shaping (PS) function from the unknown, time-varying channel functions, thereby drastically reducing the dimension to be processed and allowing computation by perturbation theory. Furthermore, applying a higher order perturbation under this approach improves the approximation process. As a result, this approach also solves MUD problems without having to process or invert large matrices or completely ignoring MAI (multi-access interference). Additionally, the method may reduce the effects of PS, ISI (inter-symbol interference), and MAI of asynchronous CDMA in multi-path environments.

[030] With the PS function distortion subtracted from received signal r(t), r'(t) has no PS effects and hence equation (2) becomes a finite mathematical (non-Hilbert space) problem. Furthermore, instead of a pulse-shaped code, the original binary code is used for all correlation, effectively reducing the computation needed. Obviously, this

separation, that is, extraction, method also applies to other known linear filtering or PS if

$\Delta(jn)$ is relatively small.